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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,084	10/21/2003	Jang-Hyoun Youm	1572.1185	2823
21171 7590 07/18/2007 STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER MCCLLOUD, RENATA D	
			ART UNIT 2837	PAPER NUMBER
			MAIL DATE 07/18/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/689,084

Applicant(s)

YOUM ET AL.

Examiner

Renata McCloud

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,7,9,13,15-21 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,7,9,13,15-21 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/29/07</u> . | 6) <input checked="" type="checkbox"/> Other: <u>translation of jp11-206184</u> .       |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,4,7,13,18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi et al (JP11206184) in view of Youn et al (US 6445879).

**Claims 1,7,13:** Adachi et al teach motor controller comprising an inverter (Fig. 3:1) comprising a bridge circuit having a plurality of first and second switching circuit units (Fig. 3:1); brake relays (Fig. 3:5,5-1,5-2; par 0013) short circuiting the motor windings (par.0009, 0011); brake resistors (Fig. 3:6.6-1,6-2) connected to the windings and consuming an overcurrent generated by the motor when the relays short the winding (par. 0011); and controlling turning on and off one of the first and second switching units provided in opposite ends of the inverter so that the overcurrent consumed by the brake resistors is changeable in proportion to a rotation speed of the motor (par. 0014), wherein the overcurrent consumed by the resistors is changed in proportion to a duty cycle of the switching units (par. 0014). They do not explicitly recite a switching controller turning on and off the switching units. Youn et al teach a switching controller (fig. 1:34) controlling the switching of the inverter. (fig. 1: 12). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Adachi et al to have a controller as taught by Plunkett in order to control the inverter.

**Claim 4:** Adachi et al and Plunkett teach the limitations of claim 1. Referring to claim 4 Adachi et al teach the switching units comprise a transistor and a diode in parallel (Fig. 3:1).

**Claim 18:** Adachi et al and Plunkett teach the limitations of claim 1. Referring to claim 18, Plunkett teaches brake relays (52,54,56) to short circuit the motor (10) by turning on when the motor brakes and to prevent the motor from rotating by an external force (col. 6:24-48).

3. Claims 3,9,15-17,19,20,21,25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi et al (JP11206184) in view of Plunkett (US 4093900) as applied to claims 1, 7,13 above and further in view of Hakala et al (US 5847533)

**Claims 3, 9,15:** Adachi et al and Plunkett teach the limitations of claims 1,7,13. Referring to claims 3,9,15, Plunkett teaches a speed detector detecting the motor speed (fig. 1:38). They do not teach the controller switches the switches so that the duty cycle is in proportion to the motor speed. Hakala et al teach a speed detector (Fig. 1:49) detecting the motor speed (col. 2:30-36), wherein the switching controller (Fig. 1:46) turns on and off the switching units so that the duty cycle of one of the switching units is in proportion to the speed of the motor (col. 2:27-39; col. 3:40-45). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Adachi et al and Plunkett et al to control the duty cycle as taught by Hakala et al in order to control the power to the motor.

**Claim 16:** Adachi et al, Plunkett, and Hakala et al teach the limitations of claim 15. Referring to claim 16, Adachi et al teach switching units (Fig. 1:1) comprise first and second switching units (Fig.3: 1, upper bridge and lower bridge) connected in parallel to the motor (Fig. 3:7). Hakala et al teach switching units (Fig. 1:52-57) comprise first and second switching units (Fig.1: upper bridge 52-54 and lower bridge 55-57) connected in parallel to the motor (Fig. 1: 2),

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wherein the controller turns on and off the first and second switching units so that the duty cycle is in proportion to the rotation speed of the motor (Col. 3:5-29; speed=frequency=duty cycle; col. 3:40-45) detected by the speed detecting part (Fig. 1:49).

**Claim 17:** Adachi et al, Plunkett and Hakala et al teach the limitations of claim 16.

Referring to claim 17, Adachi et al teach the switching units comprise a transistor and a diode in parallel (Fig. 3:1). Hakala et al teach the switching units comprise a transistor and a diode in parallel (Fig. 1: 32 and 52 in parallel).

**Claim 19:** Adachi et al, Plunkett, and Hakala et al teach the limitations of claim 15.

Referring to claim 19, Hakala et al teach the speed detector (49) transmits the detected speed to the controller to control the switching units to turn on and off by the duty cycle changed in proportion to the speed (Col. 3:5-29; speed= pulse frequency=duty cycle; col. 3:40-45).

**Claim 21:** Adachi et al, Plunkett, and Hakala et al teach the limitations of claim 16.

Referring to claim 16, Hakala et al teach when the overcurrent is generated, power from the motor is consumed in the brake resistor in proportion to a time the overcurrent flowing through the brake resistor (Col. 3:5-29; col. 3:40-45; speed= pulse frequency=duty cycle, which are all functions of time).

**Claims 20, 25:** Adachi et al, Plunkett, and Hakala et al teach the limitations of claim 16.

Referring to claims 20,25, Hakala et al teach the overcurrent from the motor is shunted/diverted through the switching units and the overcurrent flowing is reduced through the brake resistors (fig1: 60,58; fig3: 78,80,82; col. 2:47-55) connected between the switching units (fig 1:52-57; fig 3:70) when the switching units are on (col. 2:47-55), and the overcurrent flows through the brake resistors (fig1: 60,58; fig3: 78,80,82) and is prevented from flowing through the switching units (fig 1:52-57; fig 3:70) when the switching units are off (col. 1:50-53).

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**Conclusion**

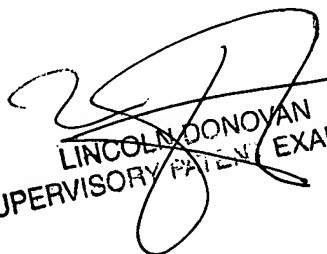
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (571) 272-2069. The examiner can normally be reached on Mon.- Fri. from 5:30 am - 2pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Renata McCloud  
Examiner  
Art Unit 2837

rdm

  
LINCOLN DONOVAN  
SUPERVISORY PATENT EXAMINER